
Secretary Gale Norton
United States Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

Secretary Donald Evans
United States Department of Commerce
1401 Constitution Avenue, NW
Washington, D.C. 20230

Mr. Steven A. Williams, Director
United States Fish and Wildlife Service

Dr. William T. Hogarth, Director
NOAA Fisheries

November 12, 2004

Dear Secretaries Norton and Evans
and Directors Williams and Hogarth,

Pursuant to the United States Endangered Species Act, 16 U.S.C. §§ 1531-1544, petitioners Timothy Allan Watts of South Middleborough, Massachusetts and Douglas Harold Watts of Augusta, Maine submit the following Petition and Appendices to the Departments of Interior and Commerce to list the American eel (*Anguilla rostrata*) as endangered under the U.S. Endangered Species Act. This petition is filed under 5 U.S.C. § 553(3) and 50 C.F.R. part 424.14.

Sincerely,

Timothy Allan Watts
633 Wareham Street
South Middleborough, Massachusetts 02346

Douglas Harold Watts
Post Office Box 2473
Augusta, Maine 04338

**Petition to List the American Eel as an Endangered Species
Pursuant to the United States Endangered Species Act
16 U.S.C. §§ 1531 - 1544.**

PETITIONERS:

Timothy Allan Watts
633 Wareham Street
South Middleborough, MA 02346

Douglas Harold Watts
P.O. Box 2473
Augusta, ME 04338

Petitioners request the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) list the American eel (*Anguilla rostrata*) as endangered under the United States Endangered Species Act, 16 U.S.C. §§ 1531 - 1544. This petition is filed under 5 U.S.C. § 553(e) and 50 C.F.R. part 424.14.

I. STATUS OF THE AMERICAN EEL

The American eel is in steep decline across its range in the United States of America. This petition summarizes the natural history of the American eel and their cultural use; population information on the American eel; a description of existing threats to the American eel and their habitat. Petitioners are seeking listing of the American eel as endangered under the United States Endangered Species Act.

A. Life History of the American Eel

Morgan (1930) states:

"American eel are snake-like fishes which live in fresh water from their early youth to breeding time and then migrate into salt water, never to return again. The eels which come up the streams are the young ones of another generation which have traveled the long and unknown way from the sea.

"Full grown eels are about three feet long, plain colored, greenish brown above and pale greenish gray beneath. Every inch of their bodies is sinuous and flexible, well earning the phrase 'squirms like an eel.'

"During their freshwater sojourn eels usually live on the muddy bottoms of streams or in stream fed ponds. Although they generally seek deep streams they often work their way up brooks along the coast. It is a surprising but not a unique experience to catch an eel on the hook which is meant for a brook trout. Sometimes eels come out of the water and hide under muddy stones in swampy ground a few feet from the shores and they have been seen foraging on the sand along the stream sides. Eels eat almost any animals dead or alive -- insect, fishes, frogs and water-rats -- as well as aquatic plants.

"The life history of eels was not completely known until 1925 when Schmidt published his studies of both American and European species. The breeding place of American eels appears to be north of the West Indies, west and south of the regions where European eels breed. Eels spawn in deep waters and their eggs hatch into transparent floating larvae. American eels keep their larval form for about a year during which they drift near the surface. Then they are caught in the current of the Gulf Stream and carried toward the American coasts. Only when they near the coastal waters, at a depth of 3,000 feet or less, do they begin to take on the shape of adult eels. Finally small eels but two or three inches long begin to come up the rivers in great numbers. In Rhode Island young eels go up the Taunton River through April and May; in some other rivers they appear later; in many of them, thousands can be seen on the mud flats at river mouths when the tide is out. Like lampreys they rest by day and travel by night, with unbroken persistence working their way up toward the regions forsaken by their parents. Only the females persevere to the headwaters; the males stay in the lower parts of the stream. They live in these places for a number of years and then another change comes over them. They cease eating, their skins turn white and shimmering and they begin their long journey to the sea. These are the 'silver eels' which are caught in traps, as they journey downstream, resting by day and moving by night. Size -- three to four feet."

American eel are among the longest-living animals in North America and one of longest-living fishes of North America. Female American eel in northern latitudes reach ages of 20-50 years old before their sole spawning migration to the Sargasso Sea. A record exists of an American eel living 88 years in captivity (Gail Wippelhauser, Maine Department of Marine Resources, personal communication to Douglas Watts, 1996).

The executive summary of the Atlantic States Marine Fisheries Commission's Interstate Fishery Management Plan for American Eel (2000) states:

"The American eel occupies and is exploited in fresh, brackish and coastal waters along the Atlantic from the southern tip of Greenland to northeastern South America. The species has a catadromous life cycle, reproducing only in the Sargasso Sea and spending the majority of its life in freshwater. After hatching and ocean drift, initially in the pre-larval state and then in the leptocephalus phase, metamorphosis occurs. In most areas, glass eel enter the nearshore area, although there have been reports of leptocephalus

found in freshwater. Glass eel, elvers, yellow and silver eel are found in the marine environment during part of their life cycle. Elvers, yellow eels and silver eel also make extensive use of freshwater systems."

The full text of the Atlantic States Marine Fisheries Commission's Interstate Fishery Management Plan for American Eel (2000) provides a detailed description of what is currently known of the life history, habits and habitat requirements of the American eel. This Plan is included with this petition as Appendix A and its contents are incorporated into this petition by reference.

B. Use of American Eel by Humans

Humans have watched, caught and eaten American eel living in the waters of United States of America since the last Ice Age.

In 1991, a prehistoric wooden-stake fish weir was discovered at the mouth of Alder Stream on Sebasticook Lake in Newport, Maine. Radio-carbon dating of the wooden stakes by archaeologists with the University of Maine at Farmington revealed the sharpened wooden stakes of the fish weir range in age from 5,800 to 1,700 years old. The Sebasticook Lake fish weir is the oldest known fish weir in North America (Bruce Bourque, Chief Archaeologist, Maine State Museum, personal communication to Douglas Watts, October 2004).

The location of the Sebasticook Lake fish weir, at the mouth of Alder Stream, suggests it was used to capture female American eels during their fall migration to the Sebasticook River, the Kennebec River and the Atlantic Ocean. Since the 18th century, a rapids at the end of a long deadwater on the Sebasticook River in Burnham, Maine is called "Eel Weir Rips" due to long-term use of the site to catch female American eels during their migration to the Atlantic Ocean.

The downstream "V" orientation of a prehistoric stone fish weir on the Satucket River in East Bridgewater, Massachusetts suggests it was used by Native Americans to capture female American eels moving downstream from Monponsett and Robbins Ponds during their fall migration to Narragansett Bay and the Atlantic Ocean. Lithic artifacts found at the weir by archaeologists with Bridgewater State College date the Satucket River stone fish weir to 2,500 B.P.

Dohne (2004) states of the Susquehanna River:

"Long before the rivers were dammed and polluted by the white man, the American Indians were well-acquainted with the autumn migration of the eel. Swatara, as in Swatara Twp. and Swatara Creek, is the anglicized word for a Susquehannock Indian term meaning "where we eat eels." With a caloric value six times that of any other freshwater fish, the eel was a prized catch, tasting somewhat like chicken, though quite bony. It was smoked for winter and "travel" rations. Weirs, or V-shaped rock formations pointing

downriver, were fashioned to funnel migrating adult eels into basketlike traps. In some stretches of the lower Susquehanna, remnants of weirs can be spotted during low-water conditions."

Eckstorm (1938) states that Kenduskeag Stream, a tributary of the Penobscot River entering tidal waters at Bangor, Maine receives its name as an "eel spearing place" in the Penobscot Indian language. Eckstorm states the name of tidal stream on the Kennebec River in Pittston, Maine -- Nehumkeag Brook -- has a similar derivation and meaning.

ASMFC (2000) states: "Since the early 17th century, Native Americans have harvested eel for food and cultural sustenance. Today, commercial and recreational fisheries for American eel are seasonal, but remain economically important by providing both direct and indirect employment ... Since the fishery's peak in the mid 1970s at 3.5 million pounds, commercial landings have declined significantly to a near record low of 868,215 pounds in 2001. Recreational data concerning eel harvest appears to indicate a decline in abundance. According to the NMFS Marine Recreational Fisheries Statistics Survey, recreational harvest in 2001 was 10,805 eel, a significant decrease from the peak of 106,968 eel in 1982."

ASMFC (2000) further states: "Harvest pressure and habitat loss are listed as the primary causes of any possible historic and recent decline in abundance of American eel (Castonguay et al. 1994a and 1994b). Several factors contribute to the risk that heavy harvest may adversely affect eel populations: (1) American eel mature slowly, requiring 7 to 30+ years to attain sexual maturity; (2) glass eel aggregate seasonally to migrate; (3) yellow eel harvest is cumulative stress, over multiple years, on the same year class; and (4) all eel mortality is pre-spawning mortality."

C. Population Status of American Eel

The American eel is in steep decline across its range in the United States of America. Juvenile recruitment to the St. Lawrence River system and Lake Ontario has virtually ceased during the past decade. The number of juvenile eels migrating into the St. Lawrence River has fallen from 935,000 individuals in 1985 to approximately 8,000 in 1993 and to levels approaching zero in recent years (ASMFC 2000).

Dohne (2004) states: "Lake Ontario, which had as many as 10 million eels two decades ago, now holds only tens of thousands, according to Ontario's Ministry of Natural Resources. The Ministry says Ontario's commercial eel harvest peaked at more than 500,000 pounds in 1978. Last year's take was a fraction of that, or 30,000 pounds. Ontario officials blame the eel's plight on overharvesting, migration barriers, climate conditions and hydro-dam turbines. Monitoring of St. Lawrence River hydro dams reveals that 46 percent of adult eels exit the turbines dead."

The number of juvenile eels counted annually at the Conowingo Dam on the Susquehanna River has declined from a peak of 126,543 in 1974 to nearly zero in recent years (ASMFC 2000). At the November 18, 2002 meeting of the ASMFC Eel

Management Board, Mr. Richard Snyder, ASMFC representative for Pennsylvania, stated: "No American eels really pass the Conowingo Fish Lift, based on the annual samplings there lately."

U.S. harvests of American eel on the Atlantic Coast have declined 64 percent of the long-term average since 1950; almost 44 percent below the 20-year average; and about 30 percent below the five year average, based on 2002 harvest reports collected by the Atlantic States Marine Fisheries Commission (Geer 2004).

ASMFC (2000) states:

"Harvest pressure and habitat loss are listed as the primary causes of any possible historic and recent decline in abundance of American eel (Castonguay et al. 1994a and 1994b). Several factors contribute to the risk that heavy harvest may adversely affect eel populations: (1) American eel mature slowly, requiring 7 to 30+ years to attain sexual maturity; (2) glass eel aggregate seasonally to migrate; (3) yellow eel harvest is cumulative stress, over multiple years, on the same year class; and (4) all eel mortality is pre-spawning mortality. Habitat losses have been a chronic problem since the arrival of the Europeans. Blockage of stream access, pollution and nearshore habitat destruction limit habitat availability for eel. Castonguay et al. (1994b) indicated that oceanic changes may now also contribute to decline in eel abundance. Busch et al. (1998) estimated that diadromous fish, dependent on access to Atlantic coastal watersheds, may be hindered from reaching up to 84 percent of upstream habitats."

On August 14, 2003, eel biologists from 18 countries meeting in Quebec, Canada, drafted and unanimously approved a declaration titled: *The Quebec Declaration of Concern: Worldwide Decline of Eels Necessitates Immediate Action*.

This declaration was written at the 2003 International Eel Symposium, held in conjunction with the 2003 American Fisheries Society Annual Meeting, Quebec, Canada, 14 August, 2003. The Declaration states:

"The steep decline in populations of eels endangers the future of these legendary fish. With less than 1 percent of major juvenile resources remaining, precautionary efforts must be taken immediately to sustain these stocks. In recent decades, juvenile abundance has declined dramatically; by 99 percent for the European eel (*Anguilla anguilla*) and by 80 percent for the Japanese eel (*Anguilla japonica*). Recruitment of American eel (*Anguilla rostrata*) to Lake Ontario, near the species' northern limit, has virtually ceased.

"Eels, which depend on freshwater and estuarine habitats for their juvenile growth phase, anthropogenic impacts (e.g. pollution, habitat loss and migration barriers, fisheries) are considerable and may well have been instrumental in prompting these declines. Loss of eel resources will represent a loss of biodiversity but will also have considerable impact on socioeconomics of rural areas, where eel fishing still constitutes a cultural tradition. Research is underway to develop a comprehensive and effective restoration plan. This, however, will require time. The urgent concern is that the rate of decline necessitates

swifter protective measures. As scientists in eel biology from 18 countries assembled at the International Eel Symposium 2003 organized in conjunction with the 2003 American Fisheries Society Annual Meeting in Quebec, Canada, we unanimously agree that we must raise an urgent alarm now. With less than 1 percent of juvenile resources remaining for major populations, time is running out. Precautionary action (e.g., curtailing exploitation, safeguarding migration routes and wetlands, improving access to lost habitats) can and must be taken immediately by all parties involved and, if necessary, independently of each other. Otherwise opportunities to protect these species and study their biology and the cause of their decline will fade along with the stocks."

According to official minutes of the March 29, 2004 meeting of the American Eel Management Board of the Atlantic States Marine Fisheries Commission in Alexandria, Virginia, Mr. Patrick Geer, Technical Committee chairman of the American Eel Management Board, stated:

"You can see, basically, they've had very little or no recruitment for the last nearly ten years at this point [in the St. Lawrence River system]. Typically, when the eels get to this area on the St. Lawrence River, they're five to seven years old. They're noticing in the last few years they're getting much older than that, so they're speculating they're having a failure of recruitment to the St. Lawrence system."

"Dr. Casselman [Dr. John Casselman of the Canada Department of Fisheries and Ocean] also performed a trend analysis on the U.S. landings and grouped states accordingly. He broke them up into southern states, central states and northern states. You can see that the landings are down as well for each one of these regions."

"The Mid-Atlantic states or the central states, as he calls it, is basically the only, what you may consider, a healthy fishery at this point. The northern and southern states have seen major declines."

"One of the tech members actually commented, 'It's pretty bad when someone who doesn't live in your country has to analyze your data and tell you what's wrong.' I think this kind of points that out."

"Bob Lang [member, Great Lakes Fisheries Commission] also went on to encourage the Great Lakes basin states and provinces that have jurisdiction over activities that kill eels, either by direct fishing mortality or through hydroelectric dams -- they're passing through the turbines -- to restrict such activities to the maximum extent practicable."

"U.S. landings on the Atlantic Coast are down about 64 percent of the long-term average back to 1950, almost 44 percent below the 20-year average and about 30 percent below the five year average. This is from 2002 landings reports."

At the same March 29, 2004 meeting of the American Eel Management Board of the Atlantic States Marine Fisheries Commission, Mr. Gordon Colvin, the New York representative to the ASMFC, stated:

"I believe it would be appropriate for the board, and frankly, for the Commission to express support to the U.S. Fish & Wildlife Service and to the NMFS to undertake a review to consider and evaluate the appropriateness of listing at least the Distinct Population Segment in the Great Lakes/St. Lawrence/Lake Champlain/Richelieu River drainages for listing under the US ESA, just as Canada is undertaking with respect to SARA.

"I would even go so far as to suggest that in the process of that review, that the services consider a broader look at eel resources in the United States, particularly in light of the fact that if the hypothesis suggested by Dr. John Casselman and others, that a very substantial proportion of large female eels that constitute perhaps as much as the majority or the bulk of the female spawners for this panmictic population are vulnerable to recruitment failure in the St. Lawrence system, that all of our resources may be at risk as a result of that, and it's only a matter of time, if we're not already there.

"As has been indicated, that [St. Lawrence] population segment of eels is absolutely in recruitment failure. There has essentially been no recruitment for a decade, but there are still eels in the system. There are many year classes of adult eels in the system.

"They are subject to mortality, particularly as they out-migrate through the hydroelectric dams on the St. Lawrence River and through commercial intercept fisheries further down the river, mainly in Quebec."

"Therefore there is some necessity, I think, perceived by the Canadian fisheries authorities to address these sources of mortality in that those out-migrating females may be all that they have left, given that there's ten missing year classes or so in the system now, and they want to maintain what they can get. Those eels are important to us, because they may well be, to put it simply, the mothers of most of our eels, too."

At the same March 29, 2004 meeting of the American Eel Management Board of the Atlantic States Marine Fisheries Commission, Mr. Lewis Flagg, the Maine representative of the Atlantic States Marine Fisheries Commission, stated:

"It seems to me that from the Technical Committee's presentation, that there is a pretty serious resource problem out there, not just for Canada but for the states also, so since the commission does have an American Eel Management Plan, I think it does demand our attention."

At the same March 29, 2004 meeting of the American Eel Management Board of the Atlantic States Marine Fisheries Commission, Mr. Eric Smith, the Connecticut representative of the Atlantic States Marine Fisheries Commission, stated:

"I just want to see that the issue doesn't languish until such time as five years from now, we say, okay, now we've got some landings [data] and can deal with it. This thing has been troubling for some time now that you look at the slides."

On March 10, 2004 the American Eel Management Board of the Atlantic States Marine Fisheries Commission (ASMFC) issued a press release recommending the protection of American eel under the United States Endangered Species Act. The statement reads in part:

"Canadian and US data show 2003 commercial landings are the lowest on record since 1945 and there are indications of localized recruitment failure in the Lake Ontario/St. Lawrence River system. The International Eel Symposium at the 2003 American Fisheries Society Annual Meeting reported a worldwide decline of eel populations, including the Atlantic coast stock of American eel ... The Commission also recommended that the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) consider American eel in the Lake Ontario/St. Lawrence River/Lake Champlain/Richelieu River system as a candidate for listing as a Distinct Population Segment under the Endangered Species Act. The Board also recommended that the USFWS and NMFS consider designating the entire coastwide stock as a candidate for listing under the ESA."

Despite this declaration in March 2004, the Atlantic States Marine Fisheries Commission has failed to reduce or prohibit the ongoing harvest of American eel from the waters of the Atlantic seaboard of the United States of America.

D. Anthropogenic Impacts on American Eel

1. Upstream Passage at Dams

Female American eels spend most of their lives in freshwater habitat along the Atlantic seaboard prior to returning to the Sargasso Sea to give birth. Safe and efficient access for juvenile eels to their freshwater habitat is essential to the survival of the American eel. Coastal river systems along the Atlantic seaboard are the sole migratory pathways for female American eels to gain access to their required freshwater habitat.

ASMFC (2000) states: "By region, the potential habitat loss [for American eel] is greatest (91 percent) in the North Atlantic region (Maine to Connecticut) where stream access is estimated to have been reduced from 111,482 kilometers to 10,349 kilometers of stream length. Stream habitat in the Mid Atlantic region (New York through Virginia) is estimated to have been reduced from 199,312 km to 24,534 km of unobstructed stream length (88 percent loss). The stream habitat in the South Atlantic region (North Carolina to Florida) is estimated to have decreased from 246,007 km to 55,872 km of unobstructed stream access, a 77 percent loss."

The Maryland Department of Natural Resources, MBSS Newsletter March 1999, Volume 6, Number 1 states:

"The most dramatic example of the decline of American eel abundance is dam

construction on the Susquehanna River. Prior to the completion of Conowingo and three other mainstem dams in the 1920's, eels were common throughout the Susquehanna basin and were popular with anglers. To estimate the number of eels lost as a result of construction of Conowingo Dam, we used MBSS data on American eels from the Lower Susquehanna basin and extrapolated it to the rest of the basin above the dam. Our best conservative guess is that there are on the order of 11 million fewer eels in the Susquehanna basin today than in the 1920s.

"The magnitude of this loss is corroborated by the decline in the eel weir fishery in the Pennsylvania portion of the Susquehanna River. Before the mainstem dams were constructed, the annual harvest of eels in the river was nearly 1 million pounds. Since then, the annual harvest has been zero. Given the longevity of eels in streams (up to 20 years or more) and their large size, the loss of this species from streams above Conowingo Dam represents a significant ecosystem-level impact. Because adult eels migrate to the Sargasso Sea to spawn and die -- transporting their accumulated biomass and nutrient load out of Chesapeake Bay -- the loss of eels has increased nutrient loads in the basin and reduced them in the open ocean where they are more appreciated."

2. Downstream Passage at Dams

Female American eels spend 20 to 50 years in freshwater habitat along the Atlantic seaboard before returning to the Sargasso Sea to give birth. Safe and efficient access for pregnant female American eels from their freshwater habitat to the Atlantic Ocean is essential for female American eel to give birth in the Sargasso Sea. Coastal river systems along the Atlantic seaboard are the sole migratory pathways for female American eels to gain access to their oceanic spawning grounds.

Records of severe kills of female American eels by the turbines of hydro-mechanical and hydroelectric dams exist since as early as the 1880s. A corporate history of the S.D. Warren Paper Company describes severe kills of female American eels at the company's dam at Ammoncongion Falls on the Presumpscot River, Maine during the 1880s. The Presumpscot River is the outlet of Sebago Lake, the second largest lake in Maine. The dam at the outlet of Sebago Lake has long been called the Eel Weir Dam. The S.D. Warren corporate history states at page 46:

"Water power had its peculiar troubles: every cold winter morning anchor ice would clog in the intakes, and the mill would be down. Then when warm weather came, the water would be full of eels and eels are fish with tough hides. The blades of the water wheels would not chew them up and there are frequent entries in the record stating the water supply had failed and the mill was down, because the eels had stopped the wheels."

One hundred years later, a similar report was made in 1996 by the operator of the Damariscotta Mills hydro-electric dam on the Damariscotta River in Newcastle, Maine to Lewis Flagg of the Maine Department of Marine Resources. A telephone record by Alex Hoar of the U.S. Fish and Wildlife Service, dated March 30, 1996 states:

*"Subject: Eels
Telephone Record.*

Lew Flagg told me in a telephone conversation on Saturday night that eels had stopped the project at Damariscotta Mills from operating and set off the alarm. He was told this by the plant operator. The event happened in October. He said the eels clogged the project as they were migrating downstream.

Alex Hoar."

Hydro-electric dams located on the coastal watersheds of the Atlantic seaboard are a major source of mortality for female American eel as they attempt to migrate from freshwater to the Sargasso Sea to give birth. Of 15,570 dams blocking American eel habitat in the United States, Busch et al. (1998) reported that 1,100 of these dams are used for hydroelectric power. To Petitioners' knowledge, virtually none of these 1,100 hydroelectric dams provide safe passage for migrating female American eel. As a result, downstream passage by female American eels at these dams is via the project turbines, which results in the death of virtually all female eels attempting to migrate.

Radio tagging studies of migrating female American by the Maine Department of Marine Resources at two hydro-electric dams in Maine indicate nearly 100 percent of adult female eels entering project turbines are killed or severely injured and, therefore, unable to complete their spawning migration (MDMR 2002).

ASMFC (2000) states: "Downstream passage to the American eel's historic habitat is just as important as successful upstream access. Therefore, turbine induced mortality during downstream passage needs to be resolved since it impacts prespawning adult silver eel."

A summary of two meetings held with Maine commercial eel fishermen in December, 1994 written by State of Maine fisheries biologist Frederick W. Kircheis states:

"Many eel harvesters commented on the loss of large numbers of migrating eels at power generating turbines on rivers. Apparently eels are attracted to the current drawn by the turbines while migrating at night. One eel weir operator has, as result of legal action, an agreement with a dam operator to cease generating after dark from mid-August to mid-October, the prime time for migrating eels."

Petitioners have direct experience with the magnitude of mortality to female American eel caused by hydro-electric dam turbines.

In recent years, severe kills of migrating adult American eel have been repeatedly documented by the Petitioners and the Maine Department of Marine Resources at the American Tissue hydro-electric dam on Cobbosseecontee Stream in Gardiner, Maine. This stream is a major tributary of the Kennebec River located 25 miles below the confluence of the Sebasticook and Kennebec Rivers. Spillway passage is available for American eel at the American Tissue Project. However, annual fish kills of female

American eel demonstrate that most migrating American eel select the American Tissue Dam turbine intake as their migration route, rather than the dam spillway. This has caused significant annual entrainment and death of American eel in the project turbines since the dam was redeveloped for hydroelectric power in 1978. In 2002 and 2003, American eel kills at this dam were only stopped after protests by the Petitioners and others forced the dam owner to institute dusk to dawn turbine shutdowns at the American Tissue Project during the fall silver eel migration season.

Reconstruction of the Pumpkin Hill hydro-electric dam on the Passadumkeag River in Lowell, Maine was documented to cause severe kills of migrating adult American as soon as the project began operation in 1987. Commercial silver eel harvests in the Passadumkeag River below the dam declined from a 16-year average of 10,000 pounds per year to 2,500 pounds upon activation of the Pumpkin Hill project turbines in 1987. The commercial eel fisherman, Mr. Gerald Crommett of Passadumkeag, Maine, stated in a Nov. 4, 1987 letter to the Maine Department of Marine Resources: "I feel the only eels we caught [this year] were from the waters of Cold Stream Ponds, which are below the dam." Mr. Crommett further stated: "We were never notified of the building of this dam in Lowell. The way to overcome this problem would be to close the power dam down from Aug. 15 to Oct. 15. We expect to be compensated for our loss from someone responsible for this." After threats of legal action by Mr. Crommett, the dam owner began evening turbine shutdowns at the Pumpkin Hill project during the fall eel migration season.

Radio-tracking of adult American eels by the Maine Department of Marine Resources just above the Lockwood hydro-electric project on the Kennebec River during fall 2002 indicates that 40 percent or more of the adult American eel attempting to migrate past the Lockwood Project each fall are entrained and killed in the Lockwood Dam turbines, despite the availability of the project spillway for passage (MDMR 2003).

Radio-tracking of adult female American eels by the Maine Department of Marine Resources (Maine DMR) at the Benton Falls Project in 2000 and 2001 indicate more than 50 percent of the migrating eels attempting to pass the Benton Falls project are entrained and killed in the project turbines. The studies also found that 100 percent of the eels entrained in the Benton Falls project turbines were killed by them. In fall 2001, Maine DMR staff used an underwater videocamera at the Benton Falls Project turbine outfall to attempt to locate two radio-tagged eels which had passed through the Benton Falls Project turbines. The videocamera revealed large numbers of dead eels and eel carcasses resting on the river bottom at the turbine outfall. Maine DMR's 2001 study reported stated:

"DMR personnel attempted to recover these eels on five occasions (10/22, 10/26, 10/31, 11/2, 12/7). An underwater camera revealed a deep hole below the tailrace that contained many portions of eel carcasses in various states of decay. It was apparent these eels had been killed by turbine blades Based on two years data, the surface bypass at Benton Falls is not efficient at passing eels."

In October 2004, Petitioners documented a large and severe kill of migrating female American eel at the Benton Falls hydro-electric dam on the Sebasticook River in Benton, Maine. The Sebasticook River is a large (970 square mile) tributary of the Kennebec River.

The kill was first observed and documented by Douglas Watts of Friends of the Kennebec Salmon at 6:45 a.m. on October 14, 2004. Mr. Watts observed and photographed 25-30 large female American eels in various states of decomposition on the river bottom immediately below the Benton Falls Project turbine outfall. All of the eels bore wounds and injuries indicative of turbine blade strike (ie. decapitation, severed and partially severed torsos). Most of the eels observed were 3-4 feet in length. Four bald eagles were observed directly below the dam actively feeding on decapitated eels. Mr. Watts collected two large freshly killed eels to display for officials of the Maine Department of Environmental Protection and the Maine Department of Marine Resources. During these collection efforts, two employees of Benton Falls Associates working at the dam were shown the eels by Mr. Watts. Mr. Watts informed the employees the decapitated eels had been killed by the dam turbines and were just a small fraction of those he had just observed lying dead on the river bottom below the dam. One Benton Falls Associates employee told Mr. Watts the eels were killed by seagulls, not the dam turbines. One employee informed Mr. Watts that he was trespassing. Project turbines were running at the time of Mr. Watts' visit to the site and there was no spill at the dam. All river flow was exiting through the project turbines and the surface bypass for juvenile alewives and shad. Despite that the surface bypass was in operation at the time of his visit, Mr. Watts observed and photographed numerous freshly decapitated juvenile alewives below the dam as well.

All photographs taken can be viewed at www.kennebecriver.org.

On Friday, October 15, 2004 Mr. Nathan Gray of the Maine Department of Marine Resources accompanied Mr. Watts to the Benton Falls project to perform a more thorough survey of the project tailrace for dead and injured American eel. Using chest waders and dip nets, Mr. Gray and Mr. Watts surveyed the wadeable portions of the Sebasticook River for a distance of approx. 300 yards below the Benton Falls Project. The survey lasted approximately 90 minutes with visibility hampered by dark, overcast skies. During the October 15 survey, Mr. Gray and Mr. Watts captured several very large eels that had been struck by the dam turbines the previous evening and were still barely alive but so wounded they could not avoid being captured or swim correctly. These were eels that would not have been killed had Mr. Calvin Neal of Benton Falls Associates shut down the project turbines when first alerted to the killing of eels at the dam by Mr. Watts at 8 a.m. the day before.

Mr. Gray's October 15, 2004 report to his superiors reads as follows:

"-----Original Message-----

From: Gray, Nate
Sent: Friday, October 15, 2004 4:09 PM
To: Squiers, Tom; Wippelhauser, Gail; Glowa, John M
Subject: Benton Eel kill

Returned to the tailrace of Benton Fall Hydroelectric facility this PM with Doug Watts after he reported a significant eel kill having happened sometime prior to 10/14/04. Using chest waders we inspected the tailrace outfall and found there were at least a few hundred eels killed over the past few weeks. Eels ranged from highly decomposed to cripples unable to swim. A bald eagle was noted taking off with eel remains. Nearly all sections of the tailrace that were wadeable contained the remains of adult eels that appeared to have been killed by turbine blade strike. Calvin Neal, the station operator had reduced flows to the turbine in order to more efficiently utilize water resources in generating electricity. This may account for the eels that were found that appeared whole but were nevertheless dead. On 10/14/04 I performed a routine downstream inspection of the site and was informed by Mr. Neal that a certain person in the form of Douglas Watts had come to the site and was very upset that there were dead eels below the project. I asked Mr. Neal to accompany me on an inspection walk down in the tail waters to see if there were any eels or alewives that had been entrained and killed by the turbine. Viewing conditions were less than ideal but I did note that there appeared to be a few dead eels in the tailrace. One in particular was quite visible. Having no chest waders with me I told Mr. Neal that I would return on 10/15/04 to confirm the presence of the eel(s) in the project tailwaters. Mr. Watts visited the office on the morning of 10/15/04 and told what he had seen below the Benton facility so I asked him to accompany me to show me what he had seen. He did so. There were more than he had seen the previous day. Below the rapids there is a large fall-out pool and the bottom here showed eels in various states of decay from very fresh to weeks old."

Immediately after this October 15, 2004 inspection, Mr. Gray informed Mr. Calvin Neal, the dam operator, that the river bottom below the dam contained several hundred dead eels which had been recently killed by the project turbines. Despite being provided with this information, Mr. Neal did not offer to shut down the project turbines.

On August 20, 2004 Petitioners filed a motion before the Federal Energy Regulatory Commission requesting the Commission require the Benton Falls Dam owner to provide safe passage for female American eels at the dam during the fall 2004 eel migration season. The Commission refused.

On October 16, 2004 Petitioners and Friends of Merrymeeting Bay filed complaints before the Federal Energy Regulatory Commission of an ongoing severe kill of female American eels at the dam and requested the Commission require the Benton Falls dam owner provide safe passage for female American eels for the remainder of the fall eel migration. The Commission refused.

On October 18, 2004 the State of Maine informed Petitioners it had no legal authority to

stop the ongoing killing of female American eel at the Benton Falls dam.

On October 19, 2004 the State of Maine asked the Benton Falls dam owner, Arcadia Energy of Atlanta, Georgia, to conduct voluntary evening turbine shutdowns at the dam for the remainder of the fall 2004 American eel migration season. The dam owner refused.

The website of the Benton Falls dam owner, Arcadia Energy, (www.arcadia-energy.com) states:

"We are committed to developing renewable hydroelectric power and green power while responsibly guarding and maintaining precious natural resources."

The turbines of the Benton Falls dam have remained operating and killing pregnant female American eels during the entire fall 2004 eel migration season, as they have annually each fall since the Benton Falls dam went on-line in 1987.

Petitioners have been informed by staff of the U.S. Fish & Wildlife Service that large kills of migrating female American eel have been documented in recent years by USFWS staff at the Holyoke Dam, the lowermost hydro-electric dam on the Connecticut River (Alex Haro, USFWS, personal communication to Timothy A. Watts, October 2004). The Connecticut River is the largest watershed in New England. To the Petitioners knowledge, no provision for safe passage of migrating female eels is provided at the Holyoke Dam or any other hydro-electric dam in the Connecticut River watershed.

3. Toxic Contaminants

ASMFC (2000) states:

"American eel are benthic, long-lived and lipid rich. Therefore, American eel can accumulate high concentrations of contaminants, potentially causing an increased incidence of disease and reproductive impairment as is found in other fish species (Couillard et al. 1997). An analysis of the contaminants in migrating silver eel in the St. Lawrence River showed that the highest concentrations of chemicals were in the gonads. Concentrations of PCB and DDT were found to be 17% and 28% higher in the gonads than in the carcasses. The chemical levels in the eggs could exceed the thresholds of toxicity for larvae. Also, since the migrating females are not feeding, the chemical levels in the eggs could be even higher at hatching, increasing the likelihood of toxicity to the larvae (Hodsdon et al. 1994)."

4. Human Harvest

Throughout their range in North America and the United States of America, American eel are intensively harvested at all life stages (glass eel, elver eel, yellow eel and silver eel) upon their entering coastal and freshwater habitats in the United States of America.

ASMFC (2000) states:

"Since the early 17th century, Native Americans have harvested eel for food and cultural sustenance. Today, commercial and recreational fisheries for American eel are seasonal, but remain economically important by providing both direct and indirect employment ... Since the fishery's peak in the mid 1970s at 3.5 million pounds, commercial landings have declined significantly to a near record low of 868,215 pounds in 2001. Recreational data concerning eel harvest appears to indicate a decline in abundance. According to the NMFS Marine Recreational Fisheries Statistics Survey, recreational harvest in 2001 was 10,805 eel, a significant decrease from the peak of 106,968 eel in 1982."

Geer (2004) stated: "U.S. landings on the Atlantic Coast are down about 64 percent of the long-term average back to 1950, almost 44 percent below the 20-year average and about 30 percent below the five year average. This is based on 2002 landings reports."

II. CRITERIA FOR ENDANGERED SPECIES ACT LISTING.

USFWS and NMFS are required to determine, based solely on the basis of the best scientific and commercial data available, whether a species is endangered or threatened because of any of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence. 16 U.S.C. §1533(a)(1) and 1533(b).

Petitioners provide evidence below showing that all of these factors are acting in concert to cause the precipitous decline of American eel in the United States of America, thus warranting the species' protection under 16 U.S.C. §§ 1531 - 1544.

1. THE PRESENT OR THREATENED DESTRUCTION, MODIFICATION OR CURTAILMENT OF THE SPECIES' HABITAT AND RANGE.

At least 84 percent of the freshwater habitat of the American eel in the United States of America has been destroyed, modified or curtailed to the detriment of the American eel's continued survival in the United States of America (ASMFC 2000).

Female American eels spend most of their lives in freshwater habitat along the Atlantic seaboard prior to returning to the Sargasso Sea to give birth. Safe and efficient access to and from their freshwater habitat is essential to the survival of the American eel. Coastal river systems along the Atlantic seaboard are the sole migratory pathways for female American eels to gain access to their required freshwater habitat.

ASMFC (2000) states: "By region, the potential habitat loss [for American eel] is greatest (91 percent) in the North Atlantic region (Maine to Connecticut) where stream access is estimated to have been reduced from 111,482 kilometers to 10,349 kilometers of stream length. Stream habitat in the Mid Atlantic region (New York through Virginia) is estimated to have been reduced from 199,312 km to 24,534 km of unobstructed stream length (88 percent loss). The stream habitat in the South Atlantic region (North Carolina to Florida) is estimated to have decreased from 246,007 km to 55,872 km of unobstructed stream access, a 77 percent loss.

Of 15,570 dams blocking American eel habitat in the United States, Busch et al. (1998) reported that 1,100 of these dams are used for hydro-electric power. Virtually none of these 1,100 hydro-electric dams provide, or are required to provide, safe and efficient upstream and downstream passage for American eels to utilize their historic freshwater habitat. Virtually none of the 14,470 non-hydroelectric dams reported by Busch et al. (1998) provide, or are required to provide, safe and efficient upstream and downstream passage for American eels to utilize their historic freshwater habitat.

The Maryland Department of Natural Resources, MBSS Newsletter March 1999, Volume 6, Number 1 states:

"The most dramatic example of the decline of American eel abundance is dam construction on the Susquehanna River. Prior to the completion of Conowingo and three other mainstem dams in the 1920's, eels were common throughout the Susquehanna basin and were popular with anglers. To estimate the number of eels lost as a result of construction of Conowingo Dam, we used MBSS data on American eels from the Lower Susquehanna basin and extrapolated it to the rest of the basin above the dam. Our best conservative guess is that there are on the order of 11 million fewer eels in the Susquehanna basin today than in the 1920s.

"The magnitude of this loss is corroborated by the decline in the eel weir fishery in the Pennsylvania portion of the Susquehanna River. Before the mainstem dams were constructed, the annual harvest of eels in the river was nearly 1 million pounds. Since then, the annual harvest has been zero. Given the longevity of eels in streams (up to 20 years or more) and their large size, the loss of this species from streams above Conowingo Dam represents a significant ecosystem-level impact. Because adult eels migrate to the Sargasso Sea to spawn and die -- transporting their accumulated biomass and nutrient load out of Chesapeake Bay -- the loss of eels has increased nutrient loads in the basin and reduced them in the open ocean where they are more appreciated."

The number of juvenile eels counted annually at the Conowingo Dam on the Susquehanna River has declined from a peak of 126,543 in 1974 to nearly zero in recent years (ASMFC 2000). At the November 18, 2002 meeting of the ASMFC Eel Management Board, Mr. Richard Snyder, ASMFC representative for Pennsylvania, stated: "No American eels really pass the Conowingo Fish Lift, based on the annual samplings there lately."

Dohne (2004) states: "As for elvers, the local evidence is equally thin but just as bleak. At York Haven's dam -- whose fish ladder is the only one on the lower Susquehanna to specifically monitor eel traffic -- no elvers appeared during this spring's shad run (April through mid-June)."

2. OVERUTILIZATION FOR COMMERCIAL, RECREATIONAL, SCIENTIFIC OR EDUCATIONAL PURPOSES

It is undisputed that overutilization of American eel is now occurring across the species' range in the United States of America. ASMFC (2000) states: "Harvest pressure and habitat loss are listed as the primary causes of any possible historic and recent decline in abundance of American eel (Castonguay et al. 1994a and 1994b). Several factors contribute to the risk that heavy harvest may adversely affect eel populations: (1) American eel mature slowly, requiring 7 to 30+ years to attain sexual maturity; (2) glass eel aggregate seasonally to migrate; (3) yellow eel harvest is cumulative stress, over multiple years, on the same year class; and (4) all eel mortality is pre-spawning mortality.

ASMFC (2000) further states: "Since the fishery's peak in the mid 1970s at 3.5 million pounds, commercial landings have declined significantly to a near record low of 868,215 pounds in 2001. Recreational data concerning eel harvest appears to indicate a decline in abundance. According to the NMFS Marine Recreational Fisheries Statistics Survey, recreational harvest in 2001 was 10,805 eel, a significant decrease from the peak of 106,968 eel in 1982."

Geer (2004) states: "U.S. landings on the Atlantic Coast are down about 64 percent of the long-term average back to 1950, almost 44 percent below the 20-year average and about 30 percent below the five year average. This is based on 2002 landings reports."

Colvin (2004) states that the Province of Ontario intends to ban all harvest of American eel in that portion of the St. Lawrence River system under its jurisdiction due to juvenile recruitment failure to the St. Lawrence system during the past decade.

Records of the Atlantic States Marine Fisheries Commission (ASMFC) show the Commission has failed to undertake similar protective measures for the remaining American eels living along the Atlantic seaboard of the United States; nor has the ASMFC taken any action to restrict or prohibit the ongoing harvest of American eels along the Atlantic Seaboard during the past five years.

3. INADEQUACY OF EXISTING REGULATORY MECHANISMS

There are no regulatory mechanisms in the United States of America which adequately protect the American eel from extinction.

a. The United States Fish and Wildlife Service (USFWS)

Pursuant to Section 18 of the Federal Power Act, the United States Fish and Wildlife Service has the legal authority to require the licensees of private hydro-electric dams to provide safe and efficient upstream and downstream passage for American eel at hydro-electric dams in the historic range of American eel in the United States of America.

To date, the USFWS has declined to exercise this legal authority in order to conserve the remaining American eels of the Atlantic seaboard of the United States of America.

b. The National Marine Fisheries Service (NMFS)

Pursuant to Section 18 of the Federal Power Act, the National Marine Fisheries Service has the legal authority to require the licensees of private hydro-electric dams to provide safe and efficient upstream and downstream passage for American eel at hydro-electric dams in the historic range of American eel in the United States of America.

To date, the NMFS has declined to exercise this legal authority in order to conserve the remaining American eels of the Atlantic seaboard of the United States of America.

c. The Federal Energy Regulatory Commission (FERC)

Pursuant to the Federal Power Act, the Federal Energy Regulatory Commission has the legal authority to require licensees of private hydro-electric dams to provide safe and efficient upstream and downstream passage for American eel at hydro-electric dams in the historic range of American eel in the United States of America.

To date, the Federal Energy Regulatory Commission has declined to exercise this legal authority in order to conserve the remaining American eel stocks of the Atlantic seaboard of the United States of America.

d. The United States Environmental Protection Agency (US EPA)

Pursuant to the federal Clean Water Act, the U.S. Environmental Protection Agency has the legal authority to require the licensees of private hydro-electric dams to provide safe and efficient upstream and downstream passage for American eel at hydro-electric dams to allow these waters to meet their designated uses for fishing and habitat for aquatic species as required under the federal Clean Water Act.

To date, the U.S. EPA has declined to exercise this legal authority in order to conserve the remaining American eels of the Atlantic seaboard of the United States of America.

e. Atlantic States Marine Fisheries Commission (ASMFC)

Pursuant to the federal Magnuson-Stevens Fisheries Conservation Act, the Atlantic States Marine Fisheries Commission has the legal authority to limit or prohibit the harvest of

American eel along the Atlantic seaboard of the United States.

To date, the ASMFC has declined to exercise this legal authority to conserve the remaining American eels of the Atlantic seaboard of the United States of America.

On March 10, 2004 the American Eel Management Board of the Atlantic States Marine Fisheries Commission (ASMFC) issued a press release recommending the protection of American eel under the United States Endangered Species Act. The statement reads in part:

"Canadian and US data show 2003 commercial landings are the lowest on record since 1945 and there are indications of localized recruitment failure in the Lake Ontario/St. Lawrence River system. The International Eel Symposium at the 2003 American Fisheries Society Annual Meeting reported a worldwide decline of eel populations, including the Atlantic coast stock of American eel ... The Commission also recommended that the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) consider American eel in the Lake Ontario/St. Lawrence River/Lake Champlain/Richelieu River system as a candidate for listing as a Distinct Population Segment under the Endangered Species Act. The Board also recommended that the USFWS and NMFS consider designating the entire coastwide stock as a candidate for listing under the ESA."

Despite this statement in March 2004, the Atlantic States Marine Fisheries Commission has not reduced or prohibited the ongoing harvest of all life stages of American eel from the waters of the Atlantic seaboard of the United States of America.

f. The States of the Atlantic Seaboard

Petitioners reside in the Commonwealth of Massachusetts and the State of Maine, respectively.

In the State of Maine, the petitioners have in recent years repeatedly documented and alerted State of Maine officials to severe kills of out-migrating pregnant, female American eel at several hydro-electric dams in the State. The cause of death of these eels is entrainment in hydro-electric dam turbines. This entrainment and death is caused by the lack of safe passage for adult American eels at these hydroelectric dams. Petitioners were informed by the State of Maine on October 18, 2004 that these severe kills of female American eel are not in violation of Maine law.

This determination is stated in an October 18, 2004 e-mail by Mr. Dana P. Murch of the Maine Department of Environmental Protection:

-----Original Message-----

From: Murch, Dana P

Sent: Monday, October 18, 2004 2:42 PM

To: Fisk, Andrew C; Kavanah, Brian W

Cc: Merrill, Dennis L
Subject: Benton Falls eel kill

I met today at DMR to discuss the Benton Falls eel kill situation with Commissioner George Lapointe, Deputy Commissioner David Etnier, DMR staff (Tom Squiers & Gail Wippelhauser), and Mark Randlett of the AG's Office.

It was acknowledged that the dam owner (Benton Falls Associates) is not currently in violation of either its FERC license or its DEP water quality certification for the project, both of which have eel passage provisions based on the 1998 KHDG Agreement. Under the terms of the Agreement, DMR is still studying "the appropriate permanent downstream eel passage measures to apply" to the project.

Commissioner Lapointe will take the lead in requesting that the dam owner voluntarily cease project generation at night during the eel migration season. It will be acknowledged to the dam owner that this request goes beyond the current requirements of the KHDG Agreement. If consensus is not reached with the dam owner, DMR retains the option, under the KHDG Agreement, of petitioning FERC to amend the project license to insert appropriate conditions for eel passage.

Commissioner Lapointe will also take the lead in setting up a meeting with the entire Maine hydro industry to discuss eel passage issues. I plan to participate in this discussion.

Dana

In June 2003, Petitioners successfully moved by hand and plastic shopping bag more than 5,000 elver American eels over the impassable Fort Halifax Dam on the Sebasticook River in Winslow, Maine. Several days later, Petitioners were told by the Maine Department of Marine Resources their effort violated Maine law and the Petitioners must cease their actions (Ms. Gail Wippelhauser, Maine Department of Marine Resources, e-mail communication to Douglas H. Watts, June 2003)

Subsequent to this event, Petitioners were informed by the State of Maine in the fall of 2003 and 2004 that severe kills of adult female eels at several hydroelectric dams in Maine, documented and reported by the Petitioners, are legal and allowable under Maine law.

During the past five years, Petitioners have directly observed and documented the inability of hundreds of thousands of glass eels to pass the abandoned Horseshoe Pond dam located in the tidal waters of the Weweantic River in Wareham, Massachusetts. The Weweantic River is the largest freshwater tributary of Buzzards Bay. Except during periods of exceptionally high tides, the abandoned Horseshoe Pond dam blocks the

migration of all native diadromous fish species into the Weweantic River.

Over the past five years, Petitioners have repeatedly requested that officials of the Commonwealth of Massachusetts assert their statutory authority to require the owner of the Horseshoe Pond dam to provide safe passage for American eel at this dam. Officials of the Commonwealth of Massachusetts have refused to do so. Petitioners have similarly requested assistance from staff of the Buzzards Bay Estuary Project, funded by the U.S. EPA, to encourage the owners of the Horseshoe Pond dam to make the dam passable to American eel and other diadromous fish. Despite having a mission statement to remove artificial obstructions from the tidal waters of Buzzards Bay, officials of the Buzzards Bay Estuary Project have repeatedly refused requests by Petitioners to address this key impediment to the survival of the American eel in Buzzards Bay, Massachusetts.

Petitioners are not aware of any instance in Maine or Massachusetts where these States have required by law the safe and efficient passage of out-migrating female American at non-hydroelectric dams in these States, despite fish passage statutes which allow the States to make such requirements.

Petitioners are not aware of any instance in Maine or Massachusetts where these States have required by law the safe and efficient passage of juvenile American eel at non-hydroelectric dams in the state, despite fish passage statutes which allow the States to make such requirements.

Petitioners are not aware of any Atlantic states other than Maine and Massachusetts which have statutes requiring the safe and efficient passage of juvenile American eel at non-hydroelectric dams; or the enforcement of such statutes if they exist.

4. OTHER NATURAL OR MANMADE FACTORS AFFECTING ITS CONTINUED EXISTENCE.

ASMFC (2000) states:

"American eel are benthic, long-lived and lipid rich. Therefore, American eel can accumulate high concentrations of contaminants, potentially causing an increased incidence of disease and reproductive impairment as is found in other fish species (Couillard et al. 1997). An analysis of the contaminants in migrating silver eel in the St. Lawrence River showed that the highest concentrations of chemicals were in the gonads. Concentrations of PCB and DDT were found to be 17% and 28% higher in the gonads than in the carcasses. The chemical levels in the eggs could exceed the thresholds of toxicity for larvae. Also, since the migrating females are not feeding, the chemical levels in the eggs could be even higher at hatching, increasing the likelihood of toxicity to the larvae (Hodsdon et al. 1994)."

III. CONCLUSION

American eel are virtually unique from other animals in that they give birth only once in their lives, in the Sargasso Sea. All American eels harvested each

year by humans have not yet given birth. All pregnant female American eels killed and injured each fall in hydro-electric turbines will never give birth. It is axiomatic that the only American eels which survive to give birth each winter are those not harvested by humans or killed in the turbines of hydro-electric dams.

The government of the United States and its agencies have the legal authority to eliminate all mortality to American eels caused by human harvest and turbine mortality at hydroelectric dams.

Under the authority of the Federal Power Act, the Federal Energy Regulatory Commission can immediately stop the killing for adult female American eel in the turbines of the 1,100 hydro-electric dams blocking the migration of American eel in the United States of America.

Under the authority of the Magnuson-Stevens Fisheries Conservation Act, the Atlantic States Marine Fisheries Commission can immediately prohibit the harvest of American eel in the waters of the United States from Maine to Florida.

Neither federal entity has done so -- despite clear evidence these actions are warranted by the precipitous decline of the American eel in North America.

The United States Congress and President Richard M. Nixon created the Endangered Species Act as the last resort for animals and plants nearing extinction -- and as the last resort for citizens of the United States trying to save their fellow creatures from extinction.

The American eel is now in danger of extinction throughout its range in the United States of America and, therefore, is endangered within the meaning of the United States Endangered Species Act, 16 U.S.C. § 1532(6).

12 November 2004

Timothy Allan Watts
633 Wareham Street
South Middleborough, Massachusetts 02346

Douglas Harold Watts
P.O. Box 2473
Augusta, Maine 04338

IV. REFERENCES CITED

Atlantic States Marine Fisheries Commission. 2000. Interstate Fishery Management Plan for American Eel (*Anguilla rostrata*). Fishery Management Report No. 36.

Busch, W.D.N., S.J. Lary, C.M. Castilione and R.P. MacDonald. 1998. Distribution and Availability of Atlantic Coast Freshwater Habitat for American Eel (*Anguilla rostrata*). Administrative Report 98-2. USFWS. Amherst, NY.

Colvin, Gerald. Minutes of March 29, 2004 Atlantic State Marine Fisheries Commission meeting. Alexandria, Virginia.

Dohne, Douglas. 2004. "Are We Seeing the End of the American Eel?" Patriot-News, Harrisburg, Pennsylvania. Edition of Sunday, October 24, 2004.

Eckstorm, F.H. 1938. Indian Place Names of the Penobscot River and Maine Coast.

Geer, Patrick. Minutes of March 29, 2004 Atlantic State Marine Fisheries Commission meeting. Alexandria, Virginia.

Maine Department of Marine Resources. 2001, 2002, 2003. Kennebec River Diadromous Fish Restoration Annual Progress Reports. Hallowell, Maine.

Maryland Department of Natural Resources, MBSS Newsletter March 1999, Volume 6, Number 1.

Morgan, Ann Haven. 1930. Field Book of Ponds and Streams: An Introduction to the Life of Fresh Water. G.P. Putnam's Sons. New York, London.

V. APPENDICES (on CD-ROM)

a. Atlantic States Marine Fisheries Commission. 1999. Interstate Fishery Management Plan for American Eel (*Anguilla rostrata*). Fishery Management Report No. 36.

b. The Quebec Declaration of Concern: Worldwide Decline of Eels Necessitates Immediate Action. Declaration issued at the 2003 International Eel Symposium, held in conjunction with the 2003 American Fisheries Society Annual Meeting, Quebec, Canada, 14 August, 2003.

c. Photographs taken by Petitioners of pregnant, female American eels killed at hydro-electric dams in Maine, 2001-2004.